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Does Collateral Affect the Access and Loan Payment Behavior of MSMEs?

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A B S T R A C T

Various problems regarding the distribution of revolving funds at the Ministry of Cooperatives and SMEs have prompted the government to transfer its management through LPDB-KUMKM (Revolving Fund Management Institution for Cooperatives and MSMEs) for the sake of financial accountability and professionalism. Several improvements have been made, among others, through collateral and service rates that have never been applied before. The service rate was applied first, with a value lower than the bank interest rate. This study examines the impact of collateral and service rates on the loan default rates. This study uses data of loan developments of LPDB-KUMKM partners from the beginning to 2018. The Logit Regression Model is used to support the analysis. This study's results indicate that collateral has a negative correlation with the growth in loan default rates. This study's results are expected to be taken into consideration by the government in regulating financing needs, especially regarding collateral and service rates, so that the accessibility of MSMEs to obtain financing from LPDB-KUMKM will increase.

A B S T R A K

Berbagai masalah penyaluran dana bergulir Kementerian Koperasi dan UKM mendorong pemerintah untuk mengalihkan pengelolaannya melalui LPDB-KUMKM demi terwujudnya akuntabilitas pembiayaan dan profesionalisme. Upaya perbaikan telah dil-akukan, antara lain, melalui penerapan agunan dan tarif layanan, yang sebelumnya hal tersebut tidak diberlakukan. Tarif layanan lebih dahulu diterapkan, namun nilainya lebih rendah dari pada suku bunga perbankan. Penelitian ini mengkaji pengaruh dari agunan dan tarif layanan terhadap tingkat gagal bayar pinjaman. Studi ini menggunakan data berupa perkembangan pinjaman mitra LPDB-KUMKM dari awal hingga tahun 2018. Model Regresi Logit digunakan untuk mendukung analisis. Hasil studi menunjukkan bahwa agunan memiliki korelasi negatif terhadap pertumbuhan tingkat gagal bayar pinjaman. Hasil penelitian ini diharapkan bisa menjadi pertimbangan pemerintah dalam mengatur persyaratan pembiayaan, terutama terkait alternatif agunan dan opsi tarif layanan, agar aksesibiltas pembiayaan UMKM kepada LPDB-KUMKM semakin meningkat.

1. INTRODUCTION

Micro, small and medium enterprises (MSMEs) have an important contribution to economic development in every country, including Indonesia. The role of MSMEs is not only for poverty alleviation but also for economic equality. Besides, MSMEs have a significant contribution to state income or foreign exchange. After the 1997-1998 economic crisis, the number of MSMEs increased and was even able to create employment opportunities as much as 97% (114 million) of the total available employment (Ministry of Cooperatives and MSMEs, 2013).

On the other hand, MSMEs have also faced various obstacles, such as limited capital and technology, absence of financial reports, lack of managerial and marketing capabilities, and capital difficulties. Concerning capital, limited access to banks or financial institutions, and the lack of financial institutions are the main problems. MSMEs' limitations in accessing funding sources are caused by the inability to provide collateral and a lack of good administration related to their business

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activities to be considered not bankable (Beck & Demirguc-Kunt, 2006; Daskalakis, 2013; Liang et al., 2017).

The government is obliged to provide financing for MSMEs. Many MSME development programs have been launched, including poverty alleviation programs, such as Farm Business Loans (KUT), Food and Energy Security Loans (KKPE), Small Investment Loans (KIK), Fixed Working Capital Loans (KMKP), and Revolving Fund Program. However, most of these programs are not successful, except for the Revolving Fund Program, which is still running and is expected to be successful and sustainable (Aziz & Wicaksono, 2017).

The Revolving Fund Program that began in 2000 was originally a capital strengthening program from the government (Ministry of Cooperatives and SMEs, 2013) provided to cooperatives and MSMEs without interest and collateral. However, several problems emerged in its development, such as unmeasured performance, low productivity of revolving funds, and biased revolving fund management standards. Various agencies channeled these funds with various types of expenditure. The accounting and reporting for revolving funds did not follow State Financial Management and Government Accounting Standards (SAP) principles. This is in accordance with the findings in a study conducted by Abe et al. (2015) that policymakers can improve conditions by acting as facilitators and communicators. The government should not provide direct financing whenever possible.

Minister of Finance Regulation (PMK) Number 99 / PMK.05 / 2008, concerning revolving funds, has changed the management of revolving funds from the Ministries / Institutions to the Work Units (Satker) by applying the Public Service Agency (BLU) Financial Management pattern. The Ministry of Cooperatives and MSMEs established Revolving Fund Management Institution for Cooperatives and MSMEs (LPDB-KUMKM) to channel loans/financing to Government Accounting Standards-based cooperatives and MSMEs so that they can run effectively, on target, and with the right benefits. Besides, revolving funds are expected to impact the economy, both locally and nationally, significantly (Trisnojuwono et al., 2018).

According to Mahjabeen (2010), financial institutions, such as banks, aim to optimize managed portfolio allocation. In other words, in lending, financial institutions have specifically provided credit distribution to MSME groups by rationalizing special loans. However, various empirical studies on microfinance conducted in various developing countries prove that asymmetric information and MSME resources have an important role in MSME financing or credit success. Asymmetric information between lenders and borrowers drives the risk of default. In this case, the lenders find it difficult to observe every detail of the agent's (borrower's) activities, which can only be observed through reported financial performance (Castillo, Mora-Valencia, & Perote, 2018).

LPDB-KUMKM has perfected the revolving fund regulation by applying collateral and charging service rates to improve service quality and professionalism. The policy aims to minimize risk. However, on the other hand, most SMEs do not have collateral as a loan requirement. Duarte et al. (2017) stated that borrowers' "lazy" behavior increases when banks ask for collateral not to mitigate observable risks but to reduce screening efforts. This study aims to determine whether collateral and service rates (interest rates) impact the default rate by LPDB-KUMKM partners.

2. THEORETICAL FRAMEWORK AND HYPOTHESES

The provision of credit or loans is intended to drive the community's economy and absorb labor, which in turn can improve the welfare of the community. However, banks' granting of credit to entrepreneurs and the public, especially those running MSMEs, always has a very high risk. Therefore, in granting credit, banks must apply sound credit principles (Caprio et al., 2010).

Some researchers in theoretical studies, including Bester (1987), Boot et al. (1991), and Stulz and Johnson (1985), suggest that the use of loan securities such as collateral, within the scope of asymmetric information, leads to the possibility of obtaining welfare benefits by limiting adverse choices and moral hazard problems. Regarding collateral use to mitigate the borrower's moral hazard, Boot et al. (1991) argue that collateral encourages borrowers to exert greater management effort to reduce the likelihood of default. Gama and Duarte (2015) argue that collateral reduces the bad incentive for borrowers to choose risky projects.

This type of effect can be captured by observing the ex-post performance of borrowers who guarantee collateral. Despite many empirical studies of collateral use, however, little attention has been given to the collateral effect on borrowing companies' ex-post performance. Most empirical studies of collateral examine the relationship between ex-ante borrower risk and collateral supply

and find that risky borrowers will more often guaranteed by collateral (Berger and Udell, 1990; Berger et al., 2011; Brick and Palia, 2007; Orgler, 1970). However, Jiménez and Saurina (2004) find that loans provided to borrowers with collateral are more likely to be non-performing loans than loans provided to unsecured borrowers simply because borrowers with collateral are riskier ex-ante (i.e., when loans are given). Most of the previous literature does not deal with the possibility of selection bias and, as such, cannot discuss whether collateral reduces the ex-post borrower's moral hazard behavior.

The results of research conducted by Comeig et al. (2015) show that the guarantee and interest rate contribute significantly to loan repayments' success. However, the collateral guaranteed is stronger on a second loan, not only after the defaults but also after the loan is successfully repaid. Research conducted by Castillo (2018) discusses SMEs' failure to capture the collateral's moral hazard effects. Related to the relationship between the borrower and the lender, the borrower is in asymmetric information.

The results of various studies show that guarantees can function as contractual tools to improve lender screening and monitor incentives. Besides, collateral is also effective in increasing bank seniority in the presence of several creditors and increasing its screening and monitoring because collateral serves as an instrument for lenders' production of information. Some banks with a low level of MSME loan analysis expertise use collateral as a substitute for poor evaluation skills. Most of the studies mentioned above are related to the role of collateral for SME accessibility opportunities for formal financing. Some of the research results are also relevant to the condition in Indonesia. There are various models of SME financing in the world. Some use the government budget (APBN), and others use private financing. However, all these studies analyze SME financing by banks, both government and private. The Government of Indonesia founded LPDB-KUMKM to provide capital for MSMEs with difficulty accessing financing from banks. As a preventive measure in suppressing the high number of defaults, LPDB-KUMKM has set a policy in the form of an obligation for its partners to provide a loan guarantee**.**

3. RESEARCH METHOD

This study aims to determine whether applying collateral as a loan requirement affects MSME financing access and partner loan repayment. For this purpose, the analysis used is Logistic Regression. The logit model is a non-linear regression model where the dependent variable is categorical. The logit model's most basic category produces binary values, such as the numbers 0 and 1, so it is often called binary logit. If the category is more than 2, the ordinal logit regression or multinomial logit is used.

Ordinal logistic regression is one of the regression methods used to find the relationship between the response variables, nominal or ordinal scale, and one or more continuous or categorical explanatory variables. The estimation of multinomial and ordinal logistic regression models' parameters is done using the Maximum Likelihood Estimation method (Sari et al., 2013). The logit model makes probabilities dependent on the observed variables, namely X1, X2, and so on. This estimation aims to find the best value for each coefficient (Kuncoro, 2004). The logistic regression model used is as follows:

$$Ldefault = a + \beta_1 Collateral_i + \beta_2 Interest_i + \beta_3 Comp_i + \beta_4 Plafon_i + \beta_5 Asset_i + \beta_6 Tenor_i + \beta_7 Legal_i$$

Ldefault is the LPDB-KUMKM partner default rate (0 = collectability of current loans, 1 = collectability of bad loans or defaults). a,β is regression coefficient. *Collateral* is the value of the collateral used as a requirement of the loan application (for partners who do not use collateral, the collateral value is 0). *Interest* is the service rate (interest rate) for a loan (1 = 4% interest, 2 = 4.5% interest, 3 = 5% interest, 4 = 6% interest). *Comp* is the type of partner company (0 = cooperative, 1 = Strategic SME). *Plafon* is the ceiling or the value of partner loans (in Million IDR). *Asset* is the value of total assets owned by partners (in Millions of Rupiah). *Tenor* is the repayment period (1 = 24 months, 2 = 36 months, 3 = 48 months, 4 = 60 months, 5 = 72 months), *Legal* is the partner's legal business entity ownership (0 = does not have a legal entity, 1 = has a legal entity).

4. DATA ANALYSIS AND DISCUSSION

This research was conducted by observing reports on the development of LPDB-KUMKM partners' loans from the beginning to 2018. This study's data are secondary data, which provide information regarding partner profiles and everything related to loan terms and conditions.

Table 1. Characteristics of LPDB-KUMKM Partner

No	Category		Current		Bad	
			Sum	%	Sum	%
1	Company	Cooperative	12	1.48	10	1.23
		Small Medium Enterprises	715	88.16	74	9.12
2	Loan Amount	< IDR 300 Million	661	81.50	6	0.74
		IDR 300 Million – IDR 2 Billion	55	6.78	62	7.64
		> IDR 2 Billion	11	1.36	16	1.97
3	Asset	< IDR 1 Billion	671	82.74	15	1.85
		IDR 1 Billion – IDR 10 Billion	45	5.55	56	6.91
		> IDR 10 Billion	11	1.36	13	1.60
4	Tenor	24 Month	1	0.12	1	0.12
		36 Month	30	3.70	37	4.56
		48 Month	7	0.86	18	2.22
		60 Month	689	84.96	25	3.08
		72 Month	0	0.00	3	0.37
5	Interest Rate	4 %	6	0.74	3	0.37
		4,5 %	680	83.85	18	2.22
		5 %	9	1.11	11	1.36
		6%	32	3.95	52	6.41
6	Legal Entity	Having a Legal Entity	252	31.07	72	8.88
		Not having Legal Entity	475	58.57	12	1.48

Source: LPDB-KUMKM, 2018, processed

From a total of 3,805 partners, consisting of banks, venture capital companies, savings and loan cooperatives, the real sector, and strategic SMEs, there are only 811 sample units. Seven hundred eighty-nine units are from strategic sector SMEs, while the remaining 22 units are from real sector cooperatives. The samples used in this study use loans directly, or in other words, as end-users.

This study's dependent variable is credit quality, divided into 2 (two) categories, namely default and paid off. The level of bad credit is commonly called the amount of non-performing loans (NPL). A high NPL value can cause major shocks to the economic system of a country, especially the monetary sector, such as banking (Hossain & Chowdhury, 2015).

In this study, the explanatory variable is the default rate. The researchers use the policy indicator variable. The first variable is the use of collateral or the application of collateral policy as a loan requirement, which then becomes a dummy variable, where partners who do not use collateral as a condition for obtaining a loan are coded 0, while partners who use collateral are coded 1. The second variable is the service rate or commonly referred to as the interest rate. In providing financing, LPDB-KUMKM applies various service rates based on the SME business sector being carried out. In this study, partners were divided into four categories based on the rates charged: 4.5%, 5%, 5.5%, and 6%.

Apart from the variables that explain the policy as described above, several control variables explain the partner's condition as a determinant of default, including the type of company, the amount of the loan, the ratio of total loans per asset, the term of the loan, the service rate, and the existing legal entity (Cassar, 2003).

Table 2. Descriptive Statistics of the Variables

Variable	Descriptive Statistics				
	Mean	Mode	Standard Deviation	Minimum	Maximum
Loan Size (in billion IDR)	0.42	0.11	1.1	0.11	13.00
Asset Value (in billion IDR)	2.68	0.13	15.99	0.12	222.15
Tenor (Month)	57.75	60.00	6.84	24.00	72.00
Legal Entity Ownership	0.40	0.00	0.49	0.00	1.00
Interest Rate (% per year)	5.34	5.00	0.64	4.00	6.00
Use of Collateral	0.83	1.00	0.37	0.00	1.00

Source: LPDB-KUMKM 2018 reports processed

Table 2 shows that the highest loan value is IDR 13 billion, while the lowest is IDR 110 million. The average loan value is IDR 420 million with a standard deviation of IDR 1.1 billion. The largest asset value is IDR 222 billion, and the smallest is IDR 120 million. The average asset size is quite high, or IDR 2.68 billion, with a standard deviation of IDR 15.99 billion. The shortest loan term is 24 months, and the longest is 72 months. The loan term chosen by most partners is 60 months, with a standard deviation of 6.84 months. Meanwhile, based on the mode's value, the most frequent number that appears is 0, so more partners do not have legal entities. The highest service rate value is 6% per year, while the lowest is 4% per year. The service rate most preferred by partners is 5% per year, with a standard deviation of 0.64. Finally, based on the value of the mode, which is 1, it can be concluded that more partners use collateral as a condition for the loan.

Based on data presented in Table 2, the majority of LPDB-KUMKM debtors have current status in credit payments. Eighty-four debtors (10.35%) have a bad status, where ten debtors are from cooperatives (1.23%) and 74 debtors (9.12%) are from SMEs. This indicates an uneven distribution between current and problematic debtors in credit payments. Partners whose loan value below IDR 300 million with current status are 661 (81.50%) and those with bad status are 6 (0.74%). Partners whose loan value ranging from IDR 300 million to IDR 2 billion with current status are 55 (6.78%) and those with default status are 62 (7.64%). Partners whose loan value more than IDR 2 billion with current status are 11 (1.68%), and those with default status are 16 (1.97%).

In terms of the asset value, partners with total asset value under IDR 1 billion with current status are 671 (82.74%), and those with bad status are 15 (1.85%). Partners whose total asset value ranging from IDR 1 to 10 billion with current status are 45 (5.55%), and those with bad status are 56 (6.91%). Partners whose total asset value more than IDR 10 billion with current status are 11 (1.36%), and those with bad status are 13 (1.60%). Related to financing period (tenor), a partner whose financing period of 24 months with a current status is 1 (0.12%) and that with bad status is 1 (0.12%). Partners whose financing period of 36 months with current status are 30 (3.70%) and those with bad status are 37 (4.56%). Partners whose financing period of 48 months with current status are 7 (0.86%) and those with bad status are 18 (2.22%). Partners whose financing period of 60 months with current status are 689 (84.96%), and those with bad status are 25 (3.08%). Meanwhile, all partners whose financing period of 72 months has a bad status, or 3 (0.37%). Based on the ownership of legal entities, it can be seen that partners who have a legal entity with current status are 252 (31.07%), and those with bad status are 72 (8.88%). Partners who do not have a legal entity with current status are 475 (58.57%), and those with NPL status are 12 (1.48%).

The strategic sector SMEs and the real sector cooperatives get service rates of 4%, 4.5%, 5%, and 6% based on the service rates. Based on the table, it can be seen that partners whose service rate of 4% with current status are 6 (0.74%) and those with bad status are 3 (0.37%). Partners whose service rate of 4.5% with current status are 680 (83.85%), and those with bad status are 18 (2.22%). Partners whose service rate of 5% with current status are 9 (1.11%) and those with bad status are 11 (1.36%). Partners whose service rate of 6% with current status are 32 (3.95%), and those with bad status are 52 (6.41%).

Empirical Result

The regression results using STATA Software show the output with error coefficient, z (z-score for the test $\beta = 0$), $p> | Z |$ (p-value, for z test). A positive slope indicates that any increase in the independent

variable will increase the possibility of default. Conversely, a negative slope indicates that any increase in the independent variable will reduce the possibility of default. The slope mark as the STATA output shows that the sign is negative and significant on the collateral variable, indicating that partners who use collateral as the condition for a loan have a greater chance of reducing the repayment rate of bad loans. However, according to Demirguc-Kunt and Detragiache (2002), some collaterals can be seen as a put option. Moral hazard still cannot be eliminated because shareholders and managers get incentives when taking high risks because there is collateral to replace money borrowed by customers. Bank shareholders have the freedom to exercise this option. In this case, the shareholder executes it when the borrower cannot return the credit.

The term of the loan has a positive slope on the coefficient and is significant. It can be interpreted that partners with longer loan terms tend to minimize the chance of default on loans. In other words, shorter loan terms tend to increase partner lending opportunities to default. As Anderson (2003) stated, there is a need to set limits and tolerate banking risks. Setting limits will provide maximum certainty for risk-takers and limited opportunities for loans to default.

The existence of a legal entity also has a positive and statistically significant slope. This means that partners who have legal entities have greater opportunities for bad loans. In other words, partners who do not have legal entities have greater opportunities to repay their loans. This fact is quite interesting because it is contrary to what was stated by Barth (2007) that legal entity reporting is a useful tool in understanding the current entity structure (organization) and the objectives of each entity. This provides a starting point for analyzing the feasibility and capacity of the entity.

Table 3. Marginal Effect Estimation Results

Variable	**Bad Loans**	
	dy/dx	**Standard Error**
Use of Collateral	-0.0392***	0.0158
Interest Rate	0.0355***	0.0096
Tenor	-0.0309***	0.0087
Legal Entity Ownership	0.0387***	0.0141
Typical of company	-0.0228	0.0234
Loan Amount	0.0001**	0.0000
Asset	0.0000	0.0000

The results of this study indicate that the number of MSMEs with legal entities is only a few. Osano and Languitone (2016) state that there is a relationship between awareness of legal entity ownership by SMEs and access to finance. These findings also show the importance of the government's role in facilitating the requirements and management of SMEs' legal entities to improve access to finance. The existence of a legal entity needs to be examined further. There is a possibility that a legal entity is only to boost the status of MSMEs to get larger loans, but this is not matched by the capacity of the businesses they have. As shown in Table 4.1, the proportion of non-performing loans is in the credit category of IDR 300 million – IDR 2 billion and $\geq$ IDR 2 billion.

Partners who have collateral tend to reduce the chance of default by 3.9 times than those without collateral. Partners tend to experience bad credit when the interest rate they receive increases by 3.25%. Partners' likelihood to experience default will decrease 3.09 times if the loan term is increased or more than one year/12 months. A legal entity's existence encourages partners to be in default 3.87 times compared to those who have no legal entity. These results indicate asymmetric information where partners who have legal entities tend to have good loan quality. Meanwhile, the loan ceiling contributes to the partner to have a chance of loss when the asset value is almost the same as the total loan or ceiling received.

5. CONCLUSION, IMPLICATION, SUGGESTION, AND LIMITATIONS

In 2014, LPDB-KUMKM began implementing the use of collateral as a condition for obtaining loans to potential partners to mitigate and anticipate an increase in Non-Performing Loans (NPL). The empirical evidence presented in this analysis shows

that collateral as a condition for obtaining a loan effectively reduces the level of partner financing default. The estimation results show that collateral as a condition for obtaining a loan and the loan term contributes to decreased bad credit. In contrast, the service rate (interest rate) and a legal entity's existence contribute to the increase in bad credit. Regarding legal entities, there is still asymmetric information on policies implemented by LPDB-KUMKM, where partners that already have legal entities are expected to reduce the level of bad credit, but the fact is the opposite. Meanwhile, after 2014, the collateral system was implemented as a condition for obtaining loans, the number of new partners decreased every year. In other words, the application of collateral affects the accessibility of MSMEs to obtain financing from LPDB-KUMKM.

Collateral contributes to reducing default. Some partners do not have assets, or their assets are insufficient to be used as collateral. Therefore, LPDB-KUMKM must find alternatives to help partners who have limited assets to be used as collateral. Meanwhile, the repayment period of the loan has a significant effect on minimizing defaults. More partners experience defaults than those that can repay, especially for tenors of 36 months and 48 months. In this case, LPDB-KUMKM must be more observant in looking at its partners' business capacity and the plan to use their loans before determining the loan repayment period.

Legal entities also contribute to defaults. This is none other than because there are still many MSMEs that do not have legal entities. Most of them only have business licenses. They have difficulty managing legal entities due to the lack of information they receive. The government needs to simplify the management of legal entities, for example, through Online Single Submission.

Considering that the default rate dominated by partners with large loans, LPDB-KUMKM must be more careful in conducting a risk analysis of the proposed loan. Business capacity, business prospects, and the amount of capital held are important parts that must be considered. Besides, LPDB-KUMKM also needs to collaborate with Bank Indonesia and P.T. PEFINDO in order to be able to find out the loan history of the potential partners.

The application of collateral as a requirement for obtaining a loan affects the accessibility of SME loans. An easy and flexible facility in submitting collateral needs to be considered. The facility includes providing alternative guarantees other than fixed assets, for example, in the form of personal guarantees, fiduciary receivables, cash guarantees, or insurance companies' assistance (PT Jamkrindo for the national level and PT. Jamkrida for the regional level).

In this study, researchers have not been able to obtain data related to MSMEs' financial conditions, such as assets, turnover, and profit and loss, where these data also have the potential to affect the rate of loan default. The data cannot be obtained due to company policy. It is expected that further research obtains the data so that it can provide a broader picture of the factors that influence the occurrence of default and the level of accessibility of MSMEs to obtain financing from LPDB-KUMKM.

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